# General Specifications

VP6F1250
GSGW
Generic Subsystem Gateway Package

**GS 33J20F10-01EN**

***[Release 6]***

## ■ GENERAL

*GSGW is an operation and monitoring station for subsystems that are pre-process and post-process pieces of equipment in a DCS. With its computer platform, GSGW can communicate with subsystems through a general-use OPC DA interface.*

*GSGW incorporates function blocks, and subsystems data are assigned thereto. These function blocks, like control stations, allow subsystem operation and monitoring through a human interface station (HIS). In subsystem communications functions using an FCS, dedicated hardware and interface features allow subsystem operation and monitoring with high reliability. GSGW uses general hardware and an interface to address subsystem operation and monitoring functions.*

## ■ SYSTEM CONFIGURATION

GSGW connects to a V net or Vnet/IP. For OPC servers, subsystem supplier or the third-party vender servers are used. Connections to an OPC server are classified into two types as given below:

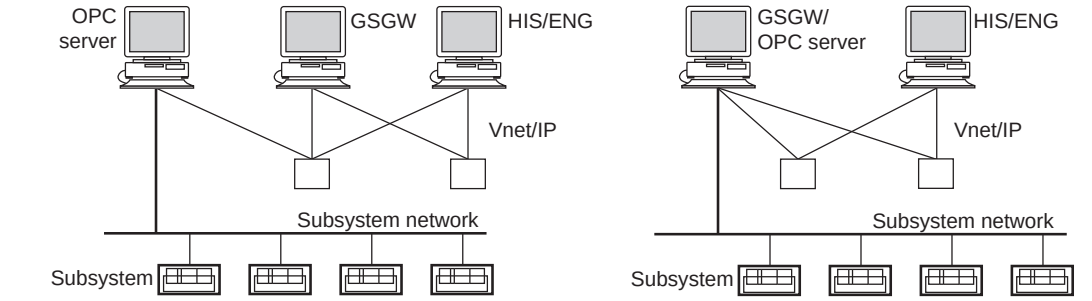
### ● When GSGW is on a computer separate from the OPC server

Connection to the subsystem network is made through an OPC server through Ethernet or Vnet/IP. This configuration is used to connect to multiple OPC servers.

### ● When GSGW and the OPC server are on the same computer

Connection to a network specific to subsystems is made directly from GSGW. Insert an interface card connected to the subsystem network into GSGW. This configuration is used to connect to one OPC server.

Note: If an OPC server of the third-party vender runs on the same computer as GSGW, make sure that it will cause no problem. Cantact Yokogawa.




When GSGW is on a computer separate from the OPC server

When GSGW and the OPC server are on the same computer

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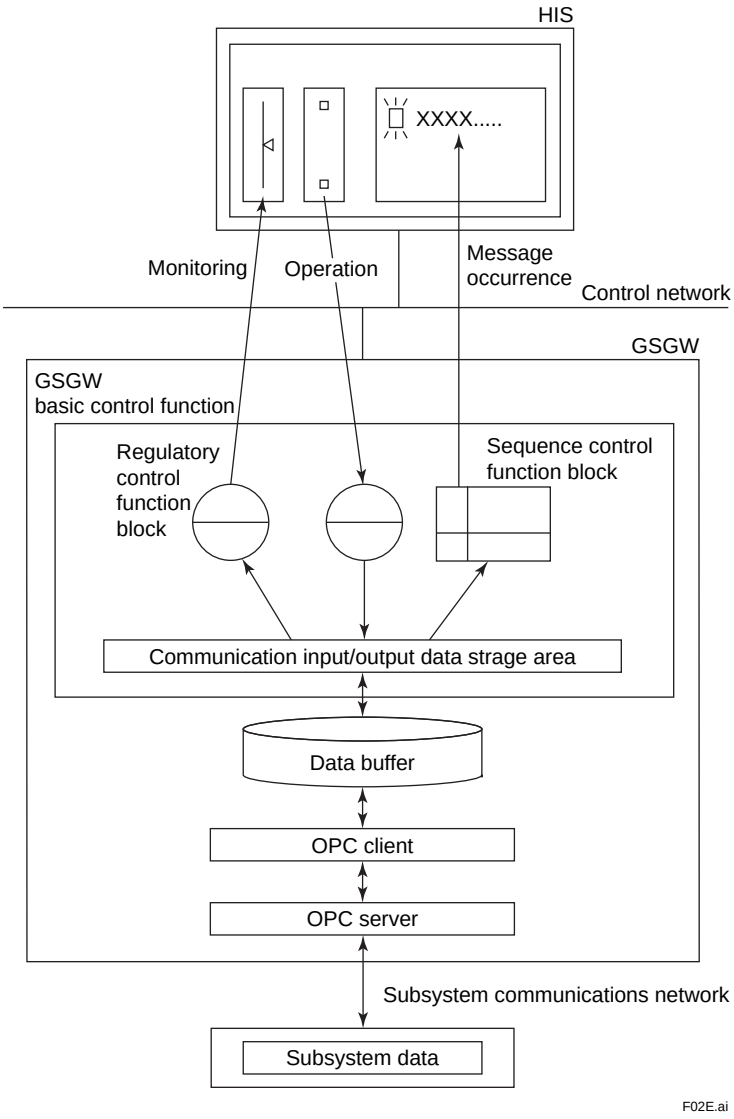
**Figure GSGW and OPC Server Configuration**

## ■ FUNCTION SPECIFICATIONS

### ● Summary of Communications with Subsystems

Communications in cases where GSGW basic functions and the OPC server are on the same computer are summarized below:

Subsystem data acquired via an OPC DA server are stored in the data buffer. Data stored in the data buffer are assigned to the communication input/output data storage area. These assigned data can be accessed from the function blocks or sequence tables in the same process as in a normal FCS.




### ● GSGW Communications Specifications

Number of OPC DA servers that can be communicated with: 4

Amount of data that can be communicated: 4,000 words

Maximum definitions that can be assigned: 1,664

## ● Function blocks

GSGW incorporates function blocks necessary for operation and monitoring. GSGW monitors Subsystem data with the input indicator block, switch instrument block, sequence table block, etc. Manual loader and switch instrument blocks are also used for operation.

GSGW does not incorporate function blocks for control applications, such as a PID controller block, SFC-type or SEBOL-type operators.

GSGW is not for control purposes, so a control-oriented PID controller block cannot be used. The function blocks used in GSGW are listed below:

**Regulatory Control Blocks**

Input Indicator Blocks: Input indicator, Input indicator with deviation alarm
Manual Loader Blocks: Manual loader, Manual loader with input indicator, Manual loader with Auto/Man SW
Signal Setter Blocks: Ratio set, 13-zone program set
Signal Limiter Block: Velocity limiter
Signal Selector Blocks: Auto selector, Signal selector, Dual-redundant signal selector

**Sequence Blocks**

Sequence Table Blocks: Table type sequence
Sequence Table:
Standard: Total of 64 input and output signals and 32 rules
Rule extension table: Each one adds 32 rules to sequence table
Logic Chart Block: Interlock block diagram to describe the relationship between input and output signals with logical operators. It consists of 32 inputs, 32 outputs and 64 logical operators. The following logical operators are available: AND, OR, NOT, Set-/Reset-dominant flip-flop with 1 or 2 outputs, Wipeout, ON-/OFF-delay timers, One-shot, Comparator (>, ≥ , =)
Bitwise AND block, Bitwise OR block, Bitwise NOT block
Extended Switch Instrument Blocks: Mainly used to operate and monitor motors and valves.
1 input, 2 inputs, 1 output, 2 outputs, 1 input 1 output, 1 input 2 outputs, 2 inputs 1 output, 2 inputs 2 outputs
Sequence Element Blocks: Mainly used to generate input signals for sequence tables.
Sequence Elements 1: Timer, Software counter, Code input, Code output.
Sequence Elements 2: Relational expression, Representative alarm, Valve monitor
SFC Blocks: Describe sequences in SFC Graphical Language.
Three-position switch SFC, Pushbutton SFC, Analog SFC.

**Calculation Blocks**

These function blocks are mainly used to perform calculation.

Arithmetic Calculation Blocks: Addition, Averaging, Multiplication, Division.
Analog Calculation Blocks: Square root, Exponential, First-order lag, Integration, Derivative, Ramp, Lead/lag, Dead-time, Dead-time compensation, Moving-average,Cumulative-average, Variable line-segment function, Temperature and pressure correction, ASTM correction: Old JIS, ASTM correction: New JIS
General-Purpose Calculation Blocks: General-purpose calculation, General-purpose calculation with string I/O
Logic Operation Blocks: AND, OR, NOT, Set-/Reset-dominant flip-flop with 1 or 2 outputs, Wipeout, ON-/OFF-delay timers, One-shot, Comparator (>, ≥ , =), bitwise AND/OR/NOT.
Auxiliary Blocks: Three-pole three-position selector switch, One-pole nine-position selector switch, Selector switch for 16 data, Selector switch for 16 string data, Data set, Data set with input indicator.
Batch Data Blocks: One-batch data set, One-batch string data set, Two-batch data set, Two-batch string data set, Batch data acquisition, Batch string data acquisition.

**Faceplate Blocks**

These faceplate blocks have a human-machine interface function that allows several function blocks to be represented by a single tag.

Analog Faceplate Blocks: Groups the control loops of a multi-block configuration as a single tag.
Dual-pointer indicating station: Indicates PVs and sets SVs.
Dual-pointer manual station: Sets SVs and manipulated output values.
Triple-pointer manual station: Indicates PVs and sets SVs and manipulated output values.
Sequence Faceplate Blocks: Used for push-button operation from the HIS, and display and operation of sequence processes as a human-machine interface for sequence control function.
Batch status indicator: Displays sequence processes and lamps of 3-push-button switch, uses for push-button operation.
Extended 5-push-button switch: Displays five lamps and uses for push-button operation.
Extended 10-push-button switch: Displays ten lamps and used for push-button operation.
Hybrid Faceplate Block: Has the functions of analog and sequence faceplate blocks.
Extended hybrid manual station: Has the functions of triple-pointer operating station and 5-push-button switch.

## ● Application Capacity

| Item | | Capacity |
|---|---|---|
| Tag Names | For elements per FCS (*1) | 2000 |
| | For function blocks (*2) | 6000 |
| Communication I/O | Data volume (in 16 bit units) | 4000 |
| | Maximum definitions | 1664 |
| | Maximum divided area | 8 |
| Internal Switches | Global switches | 256 |
| | Common switches | 4000 |
| Message Output | Annunciator messages | 2000 |
| | Messages printed | 1000 |
| | Operator guide messages | 500 |
| | Request message | 200 |
| | Voice messages (%VM) | 100 |
| | Event messages (%EV) | 200 |
| Function Blocks | Regulatory control blocks | 2500 |
| | Sequence table blocks | 200 |
| | General-purpose calculation block | 500 |
| | SFC blocks | 50 |
| | Operation blocks | 0 |
| | Enhanced switch instrument block | 2000 |
| | Sequence element 1 | 300 |
| | Faceplate blocks | 200 |
| | Arithmetic/logic calculation block | 100 |
| | Sequence element 2 | 150 |
| | Batch data block | 200 |
| | Unit Instrument | 0 |
| | User-defined Block | 0 |
| Others | ADL | 512 |
| | SEBOL user function | 50 |
| Control Functions | Control Drawings | 200 |
| 1 second Trend | Acquisition points | 256 |

*1: The number of tag names for elements per FCS indicates the maximum number of a total of contact inputs/outputs (%Z elements), common switches (%SW elements), and communication inputs/outputs (%WB elements) to which tag names can be assigned. However, up to a thousand %WB elements can only be given tag names.

*2: The number of tag names indicates the maximum number of a total of function blocks (%BL elements) and annunciators (%AN elements) to which tag names can be assigned.

## ● Scan period

Standard scan period: 1 sec. (fixed)

## ● Input/output functions

Communications input and output disconnection/connection functions.

## ■ OPERATING ENVIRONMENT

### ● Hardware Requirements

| | | |
|---|---|---|
| **Machine** | Recommended | Server computer for hardware reliability |
| **CPU** | Required | Dual-core, 2.5 GHz or faster. For CAMS for HIS, Quad Core or superior is recommended. |
| **Main memory** | Required | 8GB or more is required<br>(Windows 2008 Server R2 SP1 / Windows Server 2016/ Windows Server (IoT) 2019/ Windows Server (IoT) 2022)<br>6GB or more is required ( Windows 7 / Windows 10) |
| | Recommended | Using ECC memory |
| **Hard disk** | Required | Free space of minimum 40 GB. |
| **Network** | Required | Vnet/IP interface card (necessary if Vnet/IP is used) |
| | | Ethernet card |
| | | Various interface cards used by OPC server<br>(necessary if the OPC server runs on the same computer as GSGW) |
| **Optical drive** | Required | DVD-ROM |
| **Graphics** | Recommended | Conforms to the recommended environment of the OS |
| **Peripheral** | Recommended | Uninterruptible power supply (UPS) |

### ● Software Requirements

Windows OS and Service Pack conform to the operating environment for VP6E5100 Standard Engineering Function.
OPC Server shall be compliant with OPC DA2.0 custom interface.

## ■ MODEL AND SUFFIX CODES

**Generic Subsystem Gateway Package**

| | | Description |
|---|---|---|
| **Model** | VP6F1250 | Generic Subsystem Gateway Package |
| **Suffix Codes** | -V | Software license |
| | 1 | Always 1 |
| | 1 | English version |

## ■ ORDERING INFORMATION

Specify the model and suffix codes when ordering.

## ■ TRADEMARK ACKNOWLEDGMENT

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